

A Secondary Analysis of the Relationships between Depression, Severity, Social and
Amotivational Factors, and Decision-making Difficulties

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Abstract

The purpose of the secondary analysis is to better understand specific needs by describing relationships between depression severity, decision-making difficulties, and specific sources of decision-making difficulty (social and amotivational), so that improvements can be made in shared decision-making. A secondary cross-sectional analysis was conducted of data from a larger study to describe depressed primary care patient needs and preferences related to decision-making about depression treatment options. The subjects were depressed primary care patients (N=112) enrolled in a large Midwestern HMO, recruited from a larger random-selection case-control study of patients with and without migraine headaches. This analysis focuses on 43% (N=48; “Deciders”) of the sample that was currently making a depression treatment decision. Depression severity was measured using the Center for Epidemiologic Studies Depression (CESD) scale. Specific decision-making difficulties and factors contributing to decision-making difficulties were self-reported as present or absent using a standardized interview protocol. Decision stage was measured with a previously validated single item to assess extent of decision implementation. The results demonstrated that there are statistically significant relationships between some social and amotivational symptoms of depression and decision-making difficulty. Shared decision-making interventions that address the social and amotivational symptoms of depression could improve the treatment decisions of the depressed medical population. This analysis will add to knowledge about specific patient needs for support related to depression treatment decision-making.

Introduction

Depression is a serious mental health condition that is associated with multiple symptoms that can significantly interfere with all aspects of life. Depression that is not adequately managed can damage personal relationships, decrease productivity, cause suicidal thoughts, and sometimes impair cognitive abilities such as the ability to make decisions (Adler, McLaughlin, Rogers, Chang, Lapitsky, & Lerner 2006; McDermott & Ebmeier, 2009; Whisman 1999). Currently there is a focus on increasing patient participation in decision-making about care, and shared decision-making (SDM) is being explored as a communication approach to facilitate involvement. SDM is a collaborative process between a health care provider and patient in which values and expertise are mutually shared to arrive at a decision, enabling a person to have more autonomy (control) of their treatment (Wills & Riefer, 2007). Early research on SDM in mental health contexts shows promising outcomes. However, to support effective SDM in mental health contexts, it is important to understand the specific needs of people who are experiencing mental health issues and what is required to support and engage them in SDM for treatment decisions. The purpose of this thesis is to conduct a secondary analysis exploring the relationship between depression severity and decision-making difficulties in patients who screened positive for depression and who were making a decision about how to manage depressive symptoms.

Review of Literature

Impact of Depression

The American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders Fourth (DSM-IV) describes characteristic signs and symptoms of

depression (American Psychiatric Association [DSM-IV-TR], 2000). In clinical practice, a major depressive episode (MDE; “clinical depression”) is most often detected by interviewing a patient and finding any of a combination of the following signs and symptoms that have been present and significantly impair functioning for at least two consecutive weeks: (a) feeling “depressed”, “blue”, or “sad”, (b) being irritable or anxious, (c) change in sleep patterns, (d) change in appetite, (e) change in weight, (f) change in activity levels, (g) a sense of fatigue, (h) decreased motivation, (i) decreased interest or lack of pleasure in usually enjoyed activities, (j) decreased sex drive, and (k) decreased concentration and attention (Preskorn, 1999, p. 13). These symptoms can be debilitating and can potentially interfere with all aspects of life, including the ability to make decisions.

There are multiple other types of depression, but the effects of major depression on functioning can be especially problematic. Major depression is prevalent in people of various ages, cultures, and economic classes all around the world. The detrimental impact of depression has been well documented in the Global Burden of Disease Study (World Health Organization [WHO], 2006). By the year 2030 depression is projected to become the second leading cause of disability worldwide, in both the baseline and pessimistic scenarios methods of estimation (Mathers & Loncor, 2006). Even when the diagnostic criteria for major depression are not fully met, depression can nonetheless have significant negative impacts on both mental and physical health (Katon & Ciechanowski, 2002). For example, depression can damage personal relationships, decrease productivity, cause suicidal thoughts, and sometimes impair abilities such as the ability to

make decisions (McDermott & Ebmeier, 2009; Adler, et al., 2006; Whisman, 1999).

Even more ‘minor’ forms of depression can be associated with these problems.

While depression is commonly believed to affect decision-making abilities, there has been little formal research to test the association between these two variables (Deifenbach, Mohamed, Horwitz, & Pollack, 2008; McDermott & Ebmeier, 2009). By identifying specific relationships between depressive symptoms and the decision-making process, interventions can be shaped to assist depressed patients to make decisions relating to the management of their symptoms. SDM is a promising approach to increase patient participation in the decision-making process. Increasing patient participation has shown to benefit patients in different aspects of their care (Bultman & Svarstad, 2000; Loh, Leonhart, Wills, Simon, & Härter, 2007a; Wills & Holmes-Rovner, 2003). However, it is important to understand the specific needs for decision support to inform the design of interventions to support SDM.

Shared Treatment Decision Making

SDM is a collaborative process between a health care provider (HCP) and patient in which values and expertise are mutually shared to arrive at a decision, and enables the patient to have more autonomy (control) of their treatment (Wills & Riefer, 2007). The SDM process requires a HCP and a patient to exchange essential information that is relevant to arriving at a decision about how to manage some aspect of the patient’s health. In an illness treatment situation, for example, the HCP explains the disease process and treatment options, including the potential benefits and risks of the various options. The patient provides information on personal preferences, including any concerns about the options. Through conversation, a usual goal is for the two parties to

agree to a treatment plan (Hetrick, Simmons, and Merry, 2008), although SDM can also be used to productively clarify areas where a patient and HCP may disagree on a decision or treatment plan. SDM takes the middle ground between the *paternalistic approach*, in which the HCP decides the best course of treatment, and *informed choice*, where the patient makes the decision (Loh, Simon, Wills, Kriston, Niebling, & Härter, 2007b).

SDM has been studied in general health care contexts since the mid-1990s. SDM interventions, especially those that are supported by patient-centered decision aids (discrete interactive educational tools that provide information and aid with clarifying personal values about options), have been shown to be effective for improving a variety of outcomes. However, SDM approaches have only more recently begun to be tested in depression and other mental conditions (Duncan, Best, Hagen 2010; Loh et al. 2007b). One reason is the limited, but rapidly increasing, amount of research on the implementation and effectiveness of SDM in mental health care (Duncan et al., 2010; Simon, Loh, Wills, & Härter, 2006; Stacey et al., 2008; Wills and Holmes-Rovner 2006). Yet, early research on SDM in mental health contexts shows promising outcomes. For example, Wills and Holmes-Rovner (2003) found that patients who refused antidepressant medication wanted more decisional control, experienced more decisional conflict, and were less satisfied with their providers. Patients who were involved with decision-making were more likely to take their medication and continue taking it. They also were more likely to follow the health care plan prescribed by their HCP and to show improvements in their illnesses. In another study, patient satisfaction was found to be significantly higher in patients who participated in a shared decision-making intervention (Loh et al. 2007b). While there is evidence that using SDM to increase patient

involvement and provide more equality in the exchange of treatment options is beneficial, there is a need for additional research on the specific needs of patients that can inform the design of interventions to support SDM. This need is underscored by the still relatively small amount of existing research on SDM and depression. This thesis will help determine connections between symptoms of depression and its severity and decision-making. If these relationships can be described, SDM interventions and tools can be shaped to better address the specific issues in decision-making that may be impacted by depression. This in turn will ultimately lead to improved approaches to support effective decision-making and other outcomes, such as higher patient satisfaction, adherence to treatment, and potentially improved clinical outcome.

Impact of Depression on Decision-Making Abilities

There is some research evidence to support the common belief that depression adversely affects decision-making. One of the largest and most recent studies that provides evidence that is relevant to the impact of depression on decision-making abilities is the national DECISIONS study (Zikmund-Fischer et al., 2010), in which a national random sample of adults over the age of 40 ($n = 3,010$) was interviewed by telephone. The respondents were asked about a medical decision made in the past 2 years. When compared with patients making medication decisions about blood pressure or cholesterol, patients with depression were more unlikely to take action after discussing treatments, or to even to discuss treatments at all with a health care provider. This study reinforces the apparent difficulty that is associated with depression, making treatment decisions, and patient participation in SDM. While this research shows that depression is generally associated with difficulty in treatment decision-making, it does not directly

measure the correlation between depression severity, social symptoms, or amotivational symptoms and decision-making difficulty. A more directly relevant study regarding depression severity and decision-making difficulty was reported by Diefenbach et al. (2008). When assessing decision-making difficulty in prostate cancer patients exhibiting depressive symptoms, it was found that there was a relationship between higher levels of depressive symptoms and difficulty with decision-making. Although this research strengthened the argument for a relationship between depression severity and decision-making difficulty, it did not specifically examine social or amotivational symptoms.

Although current literature lacks research exploring the relationship between social and amotivational symptoms of depression and depression severity, those with depressive symptoms have identified social symptoms as a key factor in their decision-making difficulty. For example, some people who are experiencing depression often perceive that others are not fully supportive, including that these others may disapprove of people for having mental health problems, or perceive undue pressure related to seeking treatment for depression. In fact, depressed participants in a study examining specific decision-making difficulties identified worrying about confidentiality, embarrassment, feeling less supported, and losing face with their employer as barriers to decision-making (Stacey et al., 2008).

Besides distress related to social factors, apathy and lack of motivation are also common symptoms of depression (Preskorn, 1999). The Diagnostic and Statistical Manual of Mental Disorders describes symptoms of decreased energy, tiredness, and fatigue as characteristic symptoms among people who are experiencing depressive episodes. Without motivation to even get out of bed, making a decision may seem to be a

daunting task. Apathy may lead to the patient not even trying to make a decision, or leaving their decision up to another person whether it is family, friends, or health care providers. One key study, conducted by Stacey and colleagues (2008), identified amotivation as a factor that added to difficulty in making decisions for over half of the ‘undecided’ and a quarter of the ‘decided’ subjects in a study examining SDM related to depression treatment. Some of the identified difficulties of those who were uncertain about depression treatment decisions (‘undecided’) were feeling uninformed, having unclear values, and feeling less supported and a lack of energy (amotivational factor) (p.289). Another study (Simon et al., 2006) documented similar findings where 75% of the study participants were ‘stuck’ in making decisions regarding how to manage their depression. Some of ambivalent participants did not seem to care about the decision or its repercussions. For example, one subject was quoted saying, “ ... I would say the decision was alright, but at the same time I did not really care about what happened.”

Because motivation and energy are vital to decision-making, it is important to find out more about the relationship of these depressive symptoms and possible decision-making difficulties. Presently, there are no known studies that have directly reported a relationship between formally-measured amotivational symptoms, such as the amotivational symptom measured by the Center for Epidemiologic Studies Depression Scale (CESD) (= “I could not get going”), and specific decision-making difficulties such as lower decision stage, endorsement of delaying the decision, lacking motivation or not feeling ready to make a decision; and endorsing lacking the skill or ability to make this type of decision. Thus, the relationship between the amotivational aspect of depression and possible decision-making deficits is a key area in need of additional research.

In summary, there are a number of recent studies in which a relationship between depression severity, social, and/or amotivational and decision-making was explored. While it is reasonable based on the clinical literature to hypothesize a positive relationship between these factors and decision-making difficulties, the few most relevant studies have ‘hinted at,’ but have not directly documented all aspects of this question. While these results are promising, additional research needs to be done expand the research literature and to explore new methods to intervene and decrease these difficulties among depressed individuals.

Shared Treatment Decision Making in Depression

Literature focusing on shared treatment decision-making in depression is relatively new and relatively sparse to date. There are even fewer articles that explore the impact of depression severity and symptoms on the treatment decision-making process. Wills and Holmes-Rovner (2003) published one of the earliest studies in which the relationship between decision-making and depression was examined. They did so by evaluating their Satisfaction with Decision scale (SWD), and also used the Center for Epidemiological Depression Scale (CESD), but did not report an overall relationship between depression and satisfaction with decision. The relationship between specific CESD items and specific decision-making difficulties was not reported in the analysis.

The current literature on SDM and depression highlights some difficulties associated with depression and decision-making. Simon and colleagues (2006) assessed depressed patient’s perceptions of an SDM intervention. The study measured depression severity using the Brief Patient Health Questionnaire (Brief PHQ-9). In semi-structured interviews, patients identified depression severity as a barrier to the decision-making

process. Swanson and colleagues explored the effects of shared-decision making and patient satisfaction. They measured social support and CESD scores in relation to the sample characteristics, but did not report on any associations between these factors (Swanson, Bastani, Rubenstein, Meredith, & Ford, 2007). Another study by Loh et al. (2007b) tested the efficacy of a shared decision-making intervention for depression treatment. A brief version of the PHQ was used to measure and compare depression severity between a control group and intervention group, in which the intervention group received training and used shared decision-making techniques. However, the authors did not report the relationship between depression severity and decisional conflict, or specific difficulties making treatment decisions. Loh and colleagues (2007a) also explored the effects of a SDM intervention on adherence and clinical outcomes for patients who were currently diagnosed with depression. While depression severity was measured with the PHQ-9, the depressive symptoms were not specifically compared to specific aspects of the patients' decision-making. Stacey and colleagues (2008) explored the decision-making needs of patients with depression. Conceptual content on sources of decisional conflict (= specific sources of decision-making difficulty) was imbedded within the semi-structured interview. Their study explored the decision-making needs of patients with depression. Only 27 of the 94 subjects were 'certain' and 67 were 'uncertain' of the decision they had made regarding their treatment of depression. 'Uncertain' patients experienced more difficulty than those who were 'certain' about their decision. Because these factors are associated with being depressed and could be significant barriers to decision-making depending upon the severity of the depression, it is reasonable to hypothesize that there is a positive relationship between depression severity and self-

reported difficulties with making decisions. The study also revealed that, compared to similar studies examining decisional conflict in other patient populations, the depressed patients had more factors contributing to their decisional conflict, including social and amotivational factors. While this study showed a relationship between the social aspects of depression and decision making difficulty, it did not use interpersonal items from the CESD scale to assess the relationship between depression and decision-making difficulties.

Beyond these articles and the previously mentioned study by Diefenbach et al. (2008), there is currently a dearth of studies that directly investigate a relationship between depression severity and the frequency of self-reported decision-making difficulty regarding treatment decisions. In addition, there is also a lack of research on the relationship between depression and decision-making in general. The secondary analysis will add to the currently sparse literature and provide information on depressed patients' needs, so that SDM interventions can be improved.

Conceptual Framework

The proposed research is guided by the Ottawa Depression Support Framework (ODSF) (O'Connor et al., 1998). The ODSF is a midrange theoretical framework that guides exploration of three distinct aspects of a client's social and health related decisions, to serve as a basis for designing interventions to support effective decision-making. The three steps within the ODSF process are: 1) Finding the causative factors behind the decisions of the client and health care provider; 2) accommodating the client with individualized decision support; and, 3) interpreting (evaluating) the decision making process and its results. The focus of this thesis is on a portion of the first step

within the ODSF: ‘finding the causative factors behind the decisions of the client.’ This first step provides key information for the second step (intervention) in terms of how to tailor decision support to the specific needs of individuals.

Study Purpose

The purpose of this secondary analysis is to explore the relationship between depression severity and decision-making difficulties, in patients screening positive for depressive symptoms and who were currently making a decision about what to do about depressive symptoms.

Research Questions and Hypotheses

1. Is higher depression severity associated with a higher frequency of self-reported difficulties with making a treatment decision? It is hypothesized that the total CES-D score will be positively correlated with the frequency of self-reported decision-making difficulties.
2. Are social symptoms of depression (loneliness, and perceived unfriendliness of and dislike by others) associated with a higher frequency of specific decision-making difficulties? It is hypothesized that higher scores on items 14, 15, and 19 of the CES-D scale (social symptoms of depression) will be positively correlated with frequency of specific decision-making difficulties.
3. Is the amotivational aspect of depression associated with the impaired ability to make a decision about managing depression (in terms of decision stage delay, motivation, and skill deficit/ability)? It is hypothesized that a higher score on items 5, 7, and 20 of the CESD scale (trouble keeping my mind on what I was doing, everything I did was an effort, and could not get “going”) will be positively

correlated with: (a) lower decision stage (pre-contemplation, contemplation); (b) endorsement of delaying the decision endorsement of delaying the decision; (c) lacking motivation or not feeling ready to make a decision; and, (d) endorsing lacking the skill or ability to make this type of decision.

Methods

Research Design

This thesis focuses on a secondary analysis of participants' answers to selected interview questions from an initial interview within a larger survey study that was funded by the National Institutes of Health (MH01721; Wills, PI). The aim of the larger study was to describe the decision-making needs and preferences of 133 depressed patients from an HMO in an urban area in Michigan. The data on participant needs and preferences were collected via telephone interview. The analysis for this thesis is cross-sectional within an observational study design.

Sample and Setting

The initial selection of participants for the original study from which the proposed thesis data are drawn used a criterion of migraine headache status to select the participants. A population-based random sampling process was used to select patients who did and did not meet criteria for a diagnosis of migraine headaches. A case-control study design was used, in which the 1,256 patients identified with migraines were classified as "cases," and 1,178 randomly selected patients without migraine headaches ("controls") were chosen to match to the cases.

Participants who were chosen for the telephone interview portion of the survey study were primary care patients (N=112) who scored positive for clinically significant

depression as assessed by the Patient Health Questionnaire-9 (PHQ-9) from whom telephone survey data were collected. The PHQ-9 criteria for clinically significant depressive symptoms within a 2-week retrospective time period include endorsement of depression and/or anhedonia (at least one of these two criteria must be endorsed), and symptom frequency ratings that sum to a PHQ-9 scale score of at least 5 of 27 possible points.

Of the 112 patients who scored positive on the PHQ-9 during an initial screening, 72 were classified as migraine cases, and 61 were classified as non-migraine controls. The average age of the total sample of survey participants at the time of the initial survey telephone interview was 41.2 years. Eighty-two percent of the sample was female, and 28.6% was nonwhite. Education levels varied from high school only to advanced levels of education; i.e., 25.6% had a high school education, 65.4% had some college education, and 9% had acquired some graduate school education. The sample had significant psychological and decision-making distress at the time of the initial telephone survey. For example, antidepressant medication were being taking by 60% of the sample, but only 16% indicated medication as their first choice treatment. Other psychological disturbances were detected with 17.7% of participants having instances of suicidal ideation and 17.3% meeting diagnostic criteria for panic disorder, and 52% for other anxiety disorders. The mean decisional conflict score as measured by the Decisional Conflict Scale (DCS) for the overall sample was 2.4 of 5, indicating clinically significant decisional conflict. Of these 112 participants who completed the initial survey interview, 43% (N=48) were currently making a decision (hereafter referred to as “Deciders”) at the

time of the initial interview. This subset of Deciders (N=48) is the focus of the secondary analysis for this thesis manuscript.

IRB Review and Approval

An application for IRB Exemption was submitted based on the proposed use of fully de-identified data from the larger survey study. The application was approved as ‘exempt’ from review by The Ohio State University Behavioral and Social Sciences Institutional Review Board.

Data Collection and Sources

This thesis used a secondary analysis of participants’ answers to selected interview questions the initial interview within a larger survey study (MH#01721; Wills, PI) in which detailed information was gathered to describe the decision-making needs and preferences of 112 respondents. This existing source of data is the sole source of data for the thesis analysis.

Measures

Data for this thesis were analyzed for three types of measures: (a) depressive symptoms; (b) specific decision-making difficulties; and, (c) decision stage.

Depressive symptoms.

Depressive symptoms were measured using the original version of the Center for Epidemiologic Studies Depression (CESD) Scale. The CESD scale is a 20-item scale that asks the participant to assess the frequency with which they have experienced the symptoms in the past week. The frequencies range from, “Rarely or None of the Time (Less than 1 day),” to, “Most or All of the Time (5-7 days)” (Radloff, 1977). Higher frequency of symptoms is positively correlated with higher severity of depressive

symptoms. In general community-dwelling populations, the original cut point criterion for probable ($\geq 80\%$ likelihood) clinical depression is a total score of ≥ 16 . Since the publication of the original scale in 1977, the CESD scale psychometric properties have been extensively researched. Various additional cut points have been identified for various populations; e.g., higher cut points such as ≥ 25 in oncology populations are sometimes used to identify clinically significant depression, and/or some items such as the somatic subscale items are handled differently in medically ill populations. Shorter versions of the scale also have been derived. For the purpose of the proposed thesis, the total CESD score and six items from the scale (trouble keeping one's mind on task at hand, everything was an effort, loneliness, and perceived unfriendliness of and dislike by others, and not able to get 'going') were used to address the research questions.

Specific decision-making difficulties.

Two interview questions from the larger survey addressed various types (sources) and specific manifestations of decision-making difficulties that contribute to difficulty in making a decision that is currently being considered. For each question, a checklist of types (question 1) and manifestations (question 2) of decision-making difficulties were read to the participant in sequence, and the participant responded 'yes' or 'no' to each checklist item. Question 1 read as follows, "People can have difficulty when dealing with this decision. How are you feeling when considering this decision? Are you..." Question 2 read as follows, "Now, thinking about this decision you're making, what makes this decision especially difficult?"

From these two questions, the endorsements of certain items from each item were examined to address research questions for the proposed thesis. These include

amotivation, which is measured by, “Lacking motivation or not feeling ready to make a decision,” and *skill deficit/ability*, which is measured by, “Lacking the skill or ability to make this type of decision.”

Decision stage.

Decision stage was measured by asking participants the following question in relation to their decision-making: “Thinking about the decision you are making, how far along are you in making your decision?” Participants were then read six response options, the first being, “haven’t begun to think about the choices” (= 1), and the last being, “have already made a choice and are unlikely to change my mind” (= 6). Participants were classified as currently making a decision if they reported that they were currently making a decision about their depressive symptoms and they also endorsed any of the ‘contemplation’ or ‘action’ response options (scores of 2, 3, 4, or 5) on the decision stage scale.

Data Analysis

Analyses are organized by specific research questions/hypotheses below.

Research Question 1.

Is higher depression severity associated with a higher frequency of self-reported difficulties with making a treatment decision? It is hypothesized that the total CES-D score will be positively correlated with the frequency of self-reported decision-making difficulties or the Diffot value.

For this analysis, a sum score of self-reported decision-making difficulties was calculated to correlate with the overall (total) CESD score. The hypothesis would be

supported if a statistically significant positive association was demonstrated via the obtained correlation.

Research Question 2.

Are social symptoms of depression (loneliness, and perceived unfriendliness of and dislike by others) associated with a higher frequency of specific decision-making difficulties? It is hypothesized that higher scores on items 14, 15, and 19 of the CES-D scale (social symptoms of depression) will be positively correlated with frequency of specific decision-making difficulties.

For this analysis, a sum score of specific decision-making difficulties was calculated, and then correlated with the specific items on the CESD that measure social symptoms of depression (items 14, 15, and 19). The hypothesis would be supported if a statistically significant positive association was demonstrated via each of the three obtained correlations.

Research Question 3.

Is the amotivational aspect of depression associated with the impaired ability to make a decision about managing depression (in terms of decision stage, delay, motivation, and skill deficit/ability)? It is hypothesized that a higher score on item 5, 7, and 20 of the CESD scale (had trouble keeping my mind on what I was doing, felt everything I did was an effort could not get “going”) will be positively correlated with: (a) lower decision stage (pre-contemplation, contemplation); (b) endorsement of delaying the decision; (c) lacking motivation or not feeling ready to make a decision; and, (d) endorsing lacking the skill or ability to make this type of decision.

For this question, a correlation matrix was calculated the scores for items 5, 7, and 20 of the CESD scale, decision stage score, and decision difficulty items of decision delay, amotivation, and skill deficit/ability. The hypothesis would be supported if a statistically significant positive association was demonstrated via each of the seven obtained correlations.

Results

Sample Characteristics

Table 1 summarizes the sociodemographic and clinical characteristics of the sample for which the secondary analysis was done. The sample was 81% female (39 of 48 respondents). The age of the participants ranged from 19 to 54 years, with an average age of 41 years. Thirty-two participants (67%) identified themselves as Caucasians, while 15 participants (31%) identified themselves as African American, and one participant identified race as “other.” The mean CESD score of the sample was 32 (possible range of scores is 0-60). This is well above the above the cut-point of 16 for “significant psychological distress.” The mean decision stage score of 3.89 reflects that the participants were on average in the ‘contemplation’ (= ‘considering the options now’) stage of the decision-making process.

For each research question, the results were obtained by initially computing a bivariate Pearson correlation (r) and reconfirming each result with Kendall’s Tau (τ) and Spearman’s rho (r_s). Due to the small sample size and non-normal distribution of responses for some variables, the non-parametric equivalent tests were used to confirm each parametric analysis.

Research Question 1

It was hypothesized that the total CESD score will be positively correlated with the frequency of self-reported decision-making difficulties or the DiffTot value. Table 2 reveals there was not a statistically significant correlation between total CESD score and frequency of self-reported decision-making difficulties (DiffTot), $r = .256$, $p = 0.08$, but there was a positive correlational trend between these two values: i.e., the trend was consistent with the hypothesis, but the hypothesis was not fully supported due to the lack of statistical significance.

Research Question 2

It was hypothesized that higher scores on items 14, 15, and 19 of the CESD scale (social symptoms of depression) would be positively correlated with frequency of specific decision-making difficulties. Table 3 presents the results of these three analyses. There was a positive correlation between the total number (frequency) of decision-making difficulties and two of the three CESD items: (a) CESD item 15, "People were unfriendly," $r = .382$, $p < 0.01$, and, (b) item 19, "I felt that people dislike me", $r = .349$, $p < 0.05$. These results provide partial support for the hypothesis. Contrary to the hypothesis, CESD item 14, "I felt lonely," was not correlated with frequency of decision-making difficulties.

Research Question 3

It was hypothesized that a higher score on items 5, 7, and 20 of the CESD scale (had trouble keeping my mind on what I was doing, felt everything I did was an effort, and could not get "going") would be positively correlated with: (a) lower decision stage (pre-contemplation, contemplation); (b) endorsement of delaying the decision; (c) lacking

motivation or not feeling ready to make a decision; and, (d) endorsing lacking the skill or ability to make this type of decision. Table 4 shows that the hypothesis was partially supported; i.e., a statistically significant correlation was found between CESD item 7, “everything I did was an effort,” and the decision difficulty item 5, “Constantly thinking about the decision,” $r = .324$, $p < 0.05$. There was also a positive trend in the correlation between CESD item 5, “I had trouble keeping my mind on what I was doing,” and the decision difficulty item 5. Contrary to the hypothesis, CESD item 20 was not significantly associated with any of the three decision difficulty items or decision stage.

Other Results

Several additional analyses were done beyond those to address the research questions and associated hypotheses. First, an additional analysis revealed a statistical significant [relationship] between self reported decision-making difficulties (DiffTot) and sources of decision-making difficulties (DiffTot) and sources of decision-making difficulty (ModiffTot). Second, a significant Correlation was also found between each of the three CESD items 5, 7, and 20 (“trouble keeping my mind on what I was doing”, “everything I did was an effort”, and “I could not get going”) and source of decision-making difficulty “Don’t Know” (Modiff 9) $r = .319$, $.357$ and $.299$ respectively, $p < 0.05$. These additional results show that there is a relationship between decision-making difficulties, amotivational and social items from the CESD, and sources of decision-making difficulty.

Discussion

Hypotheses 1, 2, and 3 were partially supported. Although there was not a statistically significant correlation between the total CESD score and the total of

decision-making difficulties, the correlation was in the positive direction that was hypothesized, and the relative size of the correlation coefficient was reconfirmed with both non-parametric statistical analyses. With a larger sample size (higher statistical power), it is possible that the correlation could have been statistically [significant] and that hypothesis 1 would be fully supported. The results showed some associations between specific depression symptoms and decision difficulty, including specific types of decision-making difficulties. While these results are promising and consistent with findings by Diefenbach et al. (2008), they also show the need for additional research on the specific impact of decision-making difficulties relation to specific aspects of depression. With more empirical evidence it may be possible to intervene more effectively with specific sources of decision-making difficulty that are influenced by depressive symptoms, and increase patients' participation in shared decision-making.

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Tables

Table 3

Sample Demographics

Measure	Age (Years)	Sex	(N and %)	Race	(N and %)
Range	19-54	Male	9 (18.8%)	Caucasian	32 (66.6%)
Mean	41	Female	39 (81.2%)	African American	15 (31.3%)
SD	9.40			Other	1 (.02%)

Table 2

Summary of Intercorrelations for Research Question 1

Measure		1	2	3
1. CESD total score	Pearson Correlation		-.043	.256
	Sig. (2-tailed)	---	.774	.082
	N		47	47
2. Modifftot	Pearson Correlation	-.043		.595**
	Sig. (2-tailed)	.774	---	.00
	N	47		47
3. Difftot	Pearson Correlation	.256	.595**	
	Sig. (2-tailed)	.082	.000	---
	N	47	47	

Note. Center for Epidemiologic Studies Depression (CESD) scale is from Radloff (1977); Modifftot is the total number of items identified as sources of decision-making difficulty and Difftot is the total number of items identified as decision-making difficulty; both acquired through telephone survey. All Pearson r-values reconfirmed by non-parametric Kendall's Tau (τ) and Spearman's Rho (r_s). Data relevant to analyses for Research questions 1-3 were missing for one participant; therefore, sample size is 47 instead of 48 for these analyses.

** $p < .01$

Table 3

Summary of Intercorrelations for Research Question 2

Measure	1	2	3	4
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1. Difftot	Pearson Correlation		.093	.382**	.349*
	Sig. (2-tailed)	---	.535	.008	.016
	N		47	47	47
2. I felt lonely	Pearson Correlation	.093		.249	.318*
	Sig. (2-tailed)	.535	---	.088	.028
	N	47		48	48
3. People were unfriendly	Pearson Correlation	.382**	.249		.694**
	Sig. (2-tailed)	.008	.088	---	.000
	N	47	48		48
4. I felt people dislike me	Pearson Correlation	.349*	.318*	.694**	
	Sig. (2-tailed)	.016	.028	.00	---
	N	47	48	48	

Note. All Pearson r -values reconfirmed by non-parametric Kendall's Tau (τ) and Spearman's Rho (r_s).

* $p < .05$ ** $p < .01$

Table 4

Summary of Intercorrelations for Research Question 3

Measure		1	2	3	4	5	6	7
1.Keeping my mind on what I was doing (CESD5)	Pearson Correlation		.423**	.449**	-.103	-.103	-.203	.319*
	Sig. (2-tailed)	---	.003	.001	.172	.490	.172	<.05
	N		48	48	47	47	47	47
2.I felt that every-thing I did was an effort (CESD7)	Pearson Correlation	.423**		.740**	-.171	.161	.150	.357*
	Sig. (2-tailed)	---	.003	.000	.250	.281	.316	<.05
	N	48		48	47	47	47	47
3.I could not get 'going' (CESD20)	Pearson Correlation	.449**	.740**		-.117	.142	-.049	.229*
	Sig. (2-tailed)	.001	.000	---	.435	.341	.745	<.05
	N	47	48		47	47	47	46
4.Decision Stage	Pearson Correlation	.090	-.171	-.117		-.271	-.267	-.002
	Sig. (2-tailed)	.549	.250	.435	---	.069	.073	.989
	N	47	47	47		46	46	46
5.Delaying the decision	Pearson Correlation	-.103	.161	.142	-.271		.444**	.116
	Sig. (2-tailed)	.490	.281	.341	.069	---	.002	.439
	N	47	47	47	46		47	47
6.Lacking motivation or not feeling ready to make a decision	Pearson Correlation	-.203	.150	-.049	-.267	.444**		.148
	Sig. (2-tailed)	.172	.316	.745	.073	.002	---	.320
	N	47	47	47	46	47		47
7.Lacking the skill or ability to make this type of decision	Pearson Correlation	.319*	.357*	.229*	-.002	.116	.148	
	Sig. (2-tailed)	<.05	<.05	<.05	.989	.439	.320	---
	N	47	47	46	46	47	47	

Note. Decision Stage is from AM O'Connor 2000. All Pearson r -values reconfirmed by non-parametric Kendall's Tau (τ) and Spearman's Rho (r_s).

* $p < .05$ ** $p < .01$

